DCI/IC 78-4808

DIRECTOR OF CENTRAL INTELLIGENCE
Scientific and Technical Intelligence Committee

PAO

10 OCT 1978

25X1A MEMORANDUM FOR: [redacted]
D/DCI/RM

25X1A FROM : [redacted]
Chairman, STIC

SUBJECT : Review of Energy Intelligence Activities and Developments

REFERENCE : IC 78-5242, 18 Sept. 1978, same subject

1. Attached is the STIC response to the questions in reference memorandum: There is no response for the budgetary charts because STIC has no budget. Costs of its activities will be reflected in the individual member agency responses to the questionnaire.

Signed
[redacted] 25X1A
Chairman, STIC

Attachment: As Stated

Note: Approved For Release 2003/06/19 : CIA-RDP83M00171R000500010002-0

E2 IMPDET
CL BY: 029270

STIC Answers to Questions

(The numbered paragraphs correspond to the numbered questions in the questionnaire.)

1. The above definition of energy intelligence is not complete. It omits the whole area of military-related energy intelligence. Aside from weapons-related energy intelligence, such as MHD and other specialized power sources, it leaves out such general support items as: mobile power plants, high-energy fuels, remote-area power supplies, special-purpose batteries, etc.

2. Without regard to priority, some key energy intelligence questions, the foreign S&T aspects of which might become of interest to STIC, are as follows:

a. What role can R&D be expected to play in meeting the anticipated future shortage of natural fuels?

b. Can alternative energy technologies be expected to provide significant relief from energy shortages in the industrial world before the year 2000?

c. Will technical-economics or popular resistance to nuclear power prevent that field of energy technology from playing a significant role in the development of national energy supplies?

d. Will coal provide a significant source of energy during the period of declining availability of natural oil and gas?

e. Can enhanced recovery techniques make available significant quantities of oil and gas now left in the ground. (including oil shale and tar sands)?

f. What is the potential of nuclear fusion? the breeder? the hybrid breeder (i.e., using a fusion reactor)?

g. What is the potential of off-shore technology for oil and gas?

h. Do renewable energy sources have a greater potential role in the developing world than in the industrial world?

i. Can the OPEC countries find alternative sources of energy to permit them to continue as suppliers of oil and gas to the industrial world during the period of transition to new sources on energy?

j. What advanced energy technologies can be expected to be of military significance in the mid-term (5 to 10 years) and in the longer term (10 to 25 years)?

5. The following energy-related subjects are not being adequately covered with respect to current and future policy support needs.

a. Soviet energy R&D strategies, plans, programs, and capabilities.

b. PRC energy R&D strategies, plans, programs, and capabilities.

c. Eastern European energy R&D strategies, plans, programs, and capabilities.

d. Foreign coal conversion technologies (coal gasification, liquefaction, pyrolysis, etc.).

e. Foreign advanced coal combustion technologies (particularly, fluidized-bed combustion).

f. Foreign coal extraction and preparation technologies (including drying techniques).

g. Foreign oil and gas extraction technologies (particularly enhanced recovery techniques, off-shore development, arctic region development, and oil-shale and tar sands exploitation).

h. Foreign oil and gas exploration technologies (including seismic techniques, geochemical exploration, deep-drilling, etc.), and supporting equipment developments.

i. Foreign petroleum refining techniques (including the production of petrochemical feedstock).

j. Foreign solar energy technology (including photovoltaics, solar heating and cooling, solar-thermal power, biomass, and wind).

k. Foreign geothermal energy technology.

l. Advanced or novel foreign hydroelectric developments (such as pumped storage, mini-hydro, etc.).

m. Advanced or novel foreign thermal power plant developments (i.e., gas turbines, combined cycle, power-industrial complexes, etc.).

n. Foreign developments in the hydrogen economy concept (photosynthesis, liquid hydrogen fuels, pipeline hydrogen, etc.).

o. Foreign electrochemical power systems (fuel cells, batteries, etc.)

p. Foreign developments in energy conservation and the efficiency of utilization of energy (district heating, energy storage, power plant topping and bottoming cycles, industrial process design, etc.)

q. Foreign energy materials developments and applications.

r. Foreign energy transmission techniques (power lines, pipelines, etc.)

s. Foreign advanced power generation techniques (MHD, thermionics, thermoelectrics, etc.)

t. Foreign exotic energy developments (i.e., high-temperature superconductivity, "metallic" hydrogen, resonant power transmission, etc.)

u. Novel foreign applications of existing energy technologies.

v. For industrial world countries (mainly, Japan, UK, FRG, France and Italy), national energy R&D plans, policies and programs.

w. For selected LDC's, national energy R&D resources, plans, policies, programs and capabilities.

x. Foreign industrial and academic energy R&D plans, policies and programs.

y. International agency activities in the field of energy technology development.

z. Bilateral and multilateral agreements in the field of energy technology development.

aa. Technical-economic forecasting of the potential market for foreign energy technologies currently under development.

bb. Support of net technical-economic assessments of US and foreign energy technologies.

cc. International transfer of energy technologies with dual military and civil applications.

6. Energy intelligence does not enjoy an adequate priority at present. As one of the prime elements of economic/S&T intelligence, it should command as high a status as the overall category.

From a functional standpoint, and for economic reasons, coal combustion, coal conversion, enhanced recovery of oil and off-shore oil and gas development should all have high priority. For their importance to energy diplomacy, solar and other renewable energy technologies should come next in priority. (Solar energy technology may, of course, also achieve a measure of economic significance in foreign trade.) Nuclear energy will continue to be important from both an economic standpoint and from its role in energy diplomacy.

The true national energy development strategies of nations, as opposed to the policies annunciated in the open press, should be given high priority. In order of importance, the USSR, major free-world industrial nations, potential nuclear-proliferating LDC's, the PRC, other industrial-world nations, and finally, other LDC's with potential foreign policy significance.

7. The level of user/producer interaction with respect to energy intelligence is inadequate and, for the most part, passive. Users seldom make their intelligence wants known to producers with any degree of specificity. As a consequence, producers have difficulty in tasking sources for necessary information. The levying of energy intelligence requirements on collectors is, at best, a hit-or-miss affair.

8. There are no current, programmed, or planned analytical or collection efforts, as such. It is planned to review STIC's role with respect to non-nuclear energy technologies, however. Consideration is being given to a review of the matter of technology transfer of energy technologies with dual military and civil applications and to an updating of STIC's review of Soviet pulse power technology.

9. In order to improve its energy intelligence product, STIC is seeking out the best qualified people available to undertake specific tasks. This involves personnel from the Community, members of advisory panels, and independent consultants.

10. The analytical, collection and other resources of the Community are not now being effectively utilized and applied with respect to energy intelligence. As has already been noted, users and producers of intelligence are not participating adequately in the generation of requirements for effective collection. For example, the responsibilities of DOE and CIA in the area of non-nuclear energy S&T production are not clearly defined. As a result, neither organization is allocating a significant level of resources to the production of energy S&T intelligence. Until the question of respective roles is resolved and appropriate resources are allocated, the energy S&T intelligence product will continue to be minimal.

11. STIC maintains no data base on energy intelligence beyond that contained in the contractor-supported report[1] setting forth the status of non-nuclear energy technology developments in some 20 major industrial countries as a basis for collection efforts. STIC relies mainly on the data bases of its member organizations.

12. The prime requirement for an improvement in coordination, to speed programs, and to improve the prospects of the energy intelligence program within the Intelligence Community is a mechanism for turning out a high-grade substantive integrated product, which brings to bear the political, economic, technical and, if necessary, military aspects of a situation in response to a policy question. Clearly, this calls for an interdisciplinary task force approach where working-level analysts from different offices of the same organization, or even different organizations, are brought together under a responsible team leader reporting to some senior administrator. The latter might be an NIO, but, preferably, would be some line individual, such as a deputy director for special projects or an office director, who can see to it that the team has all of the necessary staff, clerical, editorial, and logistical support to accomplish its mission.

The idea of an NIO for energy, as a means of coordination and liaison within the Community, is not without merit. However, to try to run such a function as has been suggested above through committees or steering groups seems doomed to failure before it starts. Such bodies could, of course, perform a valuable review function. For one thing, there will have to be some semblance of at least semipermanence to the operation in order to attract the kinds of analysts who can be expected to perform effectively. Another requisite of such a center is some means of maintaining a data base on the range of technologies and issues likely to be encountered.

---

[1]STIC-78-004, Foreign Non-Nuclear Energy Technologies (U), June 78 (C,NF)

13. Committees and working groups are used to promote multipurpose and multidisciplinary energy intelligence production. As indicated in Paragraph 10, above, this is considered to be an inadequate mechanism. Planning guides to production are also issued by STIC.[1,2]

14. The various member organizations of STIC are users of its energy intelligence production. However, unless a subject involves resolution of an Intelligence Community controversy in which STIC has inserted itself, user reaction tends to be somewhat passive. The greatest source of controversy in the energy area tends to be between the economic potential view and the national security view. Each agency tends to express its parochial viewpoint derived from its unique basic mission. There is difficulty in focusing on foreign rather than domestic energy considerations. STIC reports are submitted to the DCI through NFAC and to NFIB through its secretariat.

15. Collection and/or production requirements are roughly 50% self-generated; some 25-30% come from NIO's; and the remainder through the NSC. Priorities are established on an ad hoc basis.

16. In the mid-term (5 to 10 years), the probable centers of energy intelligence concern will be the success of current efforts to extend the availability of traditional (i.e., fossil-fuel) energy supplies and develop improved systems of nuclear fission (i.e., the breeder). In the longer term (10 to 25 years), energy intelligence concerns will revolve around the potential role of new energy sources, such as renewable energy technologies and nuclear fusion. Interest will continue in prolonging the availability of energy derived from traditional sources such as coal. Depending on whether or not research has solved some of the key problems leading to new energy supplies, there may be great political and economic stress in the world arising out of competition for limited remaining supplies of traditional forms of energy.

---

[2]STIC-78-005, Proposed Intelligence Activities in Support of US Energy Policy and Planning (U), June 78 (C,OC)

FY 1977/78/79/80
Listing of Schedule and Status of Finished
Energy Intelligence Production

Topic*	Status**
"Soviet Pulse Power Technology" (U)	Published. April 1978. (TS Codeword, NF,OC) STIC 78-003JX (TCS-2662/78)
"Foreign Non-Nuclear Energy Technologies" (U)	Published. June 1978. (Conf.NF) STIC 78-004
"Proposed Intelligence Activities in Support of US Energy Policy & Planning" (U)	Published. June 1978. (Conf.OC) STIC 78-005 (STAP Report)

* List in chronological order FY77 through FY80. Include periodicals. Include production of the national laboratories.

**Identify the specific office element responsible for the product and the expected date of completion.